

# MAKE POINSETTIA PH PAPER

## Science Project

### WHAT YOU NEED:

- 4-5 red poinsettia leaves
- 400 ml beaker
- 250 ml beaker
- Funnel
- Glass petri dish (or other small, shallow dish)
- Baking rack
- Cookie sheet
- Heat source, such as a hot plate, lab burner, or alcohol lamp
- Scissors
- Water
- Filter paper (or coffee filters)

*Once Christmas is over, use the red leaves from a poinsettia plant to do an easy after-Christmas chemistry science project! In this experiment, you'll make pH test strips from poinsettia leaves and use them to discover acids and bases.*

### WHAT YOU DO:

1. Remove 4-5 red leaves from the poinsettia and use the scissors to cut them into pieces.
2. Place the cut up leaves the bottom of the 400 ml beaker. Add just enough water to cover the leaves. Cover leaves with water
3. Use your hot plate, lab burner with stand, or alcohol lamp with stand to heat the water to boiling. Be sure to follow lab fire safety protocol! (You may also use a microwave for this step.)
4. Continue simmering a few minutes until the leaves lose their color and the water is tinged deep red. Turn off heat source. If you're handling the beaker (removing from the microwave), use caution as the beaker will be hot!  
  
Allow the solution to cool.
5. Once the beaker is cool enough to touch, carefully pour the liquid through the filter paper-lined funnel into the other beaker. Remove the funnel and discard the remaining plant material and used filter paper.
6. Place another piece of filter paper (or coffee filter) into the petri dish (or other shallow dish).
7. Carefully pour the filtered liquid over the paper. Saturate the filter paper
8. Remove the now saturated filter paper from the shallow dish and allow to dry. Consider laying the saturated paper across a baking rack with paper towels or a cookie sheet underneath.
9. Once it's dry, cut it into strips and it's ready to use!



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## WHAT HAPPENED:

Like red cabbage (which can also be boiled to make pH test strips), poinsettia leaves contain a chemical pigment called anthocyanin. It's responsible for giving poinsettia leaves their deep red color. It's also behind the color of red cabbage, blueberries, and the fall colors of some leaves. Anthocyanin is also pH sensitive, which is why we can use it to make test strips.

Remember that the pH scale allows us to measure how acidic or basic a solution is. Many varieties of pH test strips are commercially available, but some plants contain chemicals that can be used to make your own pH test strips! With these poinsettia strips, acids will turn the pigments in the indicator to an orange or reddish color. Bases will turn the pigments in the poinsettia pH strips yellow-green, blue or purple. Neutral substances will show no change on the test strip.